

Claims

We claim:

- 1           1. A method for suppressing or inhibiting IgE production, said method comprising  
2     administering an effective amount of interferon tau or a chimeric interferon, wherein said  
3     chimeric interferon comprises a mammalian interferon tau amino terminus and a human type  
4     I interferon carboxy terminus other than interferon tau, or a biologically active fragment of  
5     said interferon tau or said chimeric interferon.
- 1           2. The method according to claim 1, wherein said mammalian interferon tau amino  
2     terminus is from a mammal selected from the group consisting of primate, ovine and bovine.
- 1           3. The method according to claim 1, wherein said chimeric interferon comprises  
2     amino acid residues from about amino acid residue 1 to about amino acid residue 27 of ovine  
3     interferon tau and amino acid residues from about amino acid residue 28 to about amino acid  
4     residue 166 of human interferon alpha.
- 1           4. The method according to claim 3, wherein said interferon alpha is interferon alpha  
2     D.
- 1           5. The method according to claim 1, wherein said interferon tau or said chimeric  
2     interferon is administered to a person or animal in need of suppression or inhibition of IgE  
3     production.
- 1           6. The method according to claim 1, wherein said suppression or inhibition of IgE  
2     production occurs through inhibition of B-cell IgE secretion or inhibition of B-cell  
3     proliferation.

1           7. The method according to claim 5, wherein said interferon tau or said chimeric  
2 interferon is administered by routes selected from the group consisting of oral  
3 administration, parenteral administration, subcutaneous administration and intravenous  
4 administration.

1           8. The method according to claim 7, wherein said person or animal is afflicted with,  
2 or predisposed to, an IgE-related condition.

1           9. The method according to claim 8, wherein said allergic condition is selected from  
2 the group consisting of allergic rhinitis, atopic dermatitis, bronchial asthma and food allergy.

1           10. The method according to claim 1, wherein said interferon tau or said chimeric  
2 interferon is administered *in vitro*.

1           11. The method according to claim 1, wherein said interferon tau or said chimeric  
2 interferon is formulated in a pharmaceutically acceptable carrier or diluent.

1           12. A composition comprising a chimeric type I interferon, or a biologically active  
2 mutein, fragment, variant or peptide thereof, which is capable of suppressing or inhibiting  
3 IgE production, wherein said chimeric IFN comprises part of at least two IFNs selected from  
4 the group consisting of IFN $\alpha$ , IFN $\beta$ , IFN $\tau$  and IFN $\omega$ .

1           13. The composition according to claim 12, wherein said suppression or inhibition  
2 of IgE production occurs through inhibition of B-cell IgE secretion or inhibition of B-cell  
3 proliferation.

1           14. The composition according to claim 12, wherein said chimeric IFN comprises  
2 a mammalian IFN $\tau$  amino terminus and a human type I IFN carboxy terminus other than  
3 IFN $\tau$ .

1           15. The composition according to claim 14, wherein said mammalian IFN $\tau$  amino  
2 terminus is from a mammal selected from the group consisting of primate, ovine and bovine.

1           16. The composition according to claim 14, wherein said chimeric IFN comprises  
2 amino acid residues from about 1 to about 27 of ovine IFN $\tau$  and amino acid residues from  
3 about 28 to about 166 of human IFN $\alpha$ .

1           17. The composition according to claim 16, wherein said IFN $\alpha$  is IFN $\alpha$ D.

1           18. The composition according to claim 12, wherein said chimeric IFN is  
2 recombinantly produced and is expressed in *Pichia pastoris*.

1           19. A method for suppressing or inhibiting IL-4 production, said method comprising  
2 contacting an immune cell with a type I interferon, or a biologically active mutein, fragment,  
3 variant or peptide thereof.